ejercicio T6 (seccion 5.1; algebra lineal Kollman); demuestre que:
$\|\overrightarrow{u} \times \overrightarrow{v}\|^2 + (\overrightarrow{u} \cdot \overrightarrow{v})^2 = \|\overrightarrow{u}\|^2 \|\overrightarrow{v}\|^2$
decimos que:

$$\|\overrightarrow{u}\|^2 \|\overrightarrow{v}\|^2 = (\overrightarrow{u} \cdot [\overrightarrow{v} \times (\overrightarrow{u} \times \overrightarrow{v})]) + (\overrightarrow{u} - \overrightarrow{v})^2$$

$$\|\overrightarrow{u}\|^2 \|\overrightarrow{v}\|^2 = (\overrightarrow{u} \cdot [(\overrightarrow{v} \times \overrightarrow{u}) \times \overrightarrow{v}]) + (\overrightarrow{u} \cdot \overrightarrow{v})^2$$

$$\|\overrightarrow{u}\|^2 \|\overrightarrow{v}\|^2 = (\overrightarrow{u} \cdot [(\overrightarrow{v} \cdot \overrightarrow{v})\overrightarrow{u} - (\overrightarrow{v} \cdot \overrightarrow{u})\overrightarrow{v}]) + (\overrightarrow{u} \cdot \overrightarrow{u})(\overrightarrow{v} \cdot \overrightarrow{v})$$

$$\|\overrightarrow{u}\|^2 \|\overrightarrow{v}\|^2 = [(\overrightarrow{u}(\overrightarrow{v} \cdot \overrightarrow{v})\overrightarrow{u} - \overrightarrow{u}(\overrightarrow{v} \cdot \overrightarrow{u})\overrightarrow{v})] + \overrightarrow{u}(\overrightarrow{v} \cdot \overrightarrow{v})\overrightarrow{u}$$

$$\|\overrightarrow{u}\|^2 \|\overrightarrow{v}\|^2 = (\overrightarrow{u} \cdot \overrightarrow{u})(\overrightarrow{v} \cdot \overrightarrow{v}) - (\overrightarrow{u} \cdot \overrightarrow{u})(\overrightarrow{v} \cdot \overrightarrow{v}) + (\overrightarrow{u} \cdot \overrightarrow{u})(\overrightarrow{v} \cdot \overrightarrow{v})$$

$$\|\overrightarrow{u}\|^2 \|\overrightarrow{v}\|^2 = u^2v^2 - u^2v^2 + (u)^2(v)^2$$

$$\|u\|^2 \|v\|^2 = \left\|u^2\right\| \left\|v^2\right\|$$

$$\|u\|^2 \|v\|^2 = \|u\|^2 \|v\|^2$$